On The Exact Recovery Of Cumulants

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Summary

The importance of higher-order statistics (HOS) is clearly reflected in their increasingly wide applicability. However, because of the high dimensionality involved, the digital estimation of HOS is still plagued by heavy computational loads which tend to severely reduce the potential for real-time applications. This paper proposes a solution to this problem, based on a successful exact moments recovery (EMR) theory which makes it possible to exploit the attractive practical advantages of 1-bit quantization schemes while avoiding their associated large quantization errors. Two new theorems on the variance aspects of 3 unbiased linear sample moment estimators are also presented. Finally, some simulation results on the recovery of cumulants, which are in very good agreement with the theory, are included